Common Elements

Common elements fall under two categories:

- **mo.gov common elements**: elements that are common to all state web sites across all agencies, and
- **agency common elements**: elements that are common to all the pages within an agency's site.

Common elements:

- make your site a recognizable part of the Missouri Government web
- give your users a sense of familiarity as they navigate through the State of Missouri web and your agency web site.
- help standardize your web site and
- help reinforce the need to use templates to develop your web pages.

mo.gov Common Elements

mo.gov common elements are items that should be on all state agency web sites. They fall into two major categories:

- navigation elements and
- design/layout elements.

Navigation elements

Link to State Home Page

Standard: Each agency home page must have a link to the State of Missouri home page (http://www.mo.gov).

Guideline: The users should not have to scroll to find the link.

The link to the state home page should be easily identified in the main navigation of the agency home page, either with a graphic or prominent text.

A link to the State home page:

- will allow users to navigate smoothly between the state portal and agency pages.
- identifies your agency as part of the State of Missouri web.

Link to Search Page

Standard: Your home page should allow searching through the state search engine as well as a form to search the agency pages.

Guideline: Your search page should be customized to reflect your site design and default to search your site first.

A tutorial on customizing the search pages is available in the References section on the DMD web site (http://www.oa.mo.gov/dmd/links/Tips_and_Tricks/).

If you have your own search engine installed on your server you may use it, but you still must have a link to search using the state search engine. Many users rely on searching rather than navigation tools to find the information they need, so it is important to provide

links to search tools that will let users find information in your site as well as related information in other agency sites.

Layout/Design elements

DTD

Standard: Every page must have a DTD declaration for each page.

Guideline: XHTML-Strict, XHTML-Transitional, HTML-Strict or HTML-Transitional

While the DTD is not exactly a layout or design element, it tells the user's browser how to render a page. Without this element, the browser will usually go into "quirks" mode and may not render your page as you expected.

Using a DTD will:

- make your page load faster, by letting the browser know how to interpret your page,
- give you more control over your presentation by specifying how the page should appear, and
- help your site become more accessible by using valid code that assistive technology can interpret.

Page Size

Standard: Use a flexible design that will scale to the user's resolution and browser window.

Guideline: Test to a screen size of 800x600 pixels

A flexible design scales to the user's resolution, so it won't matter if a user has his monitor resolution set to 800 by 600, 1024 by 768 or 640 by 480, and it won't matter if he browses full-screen or in a window. You will want to use percentages instead of absolute widths for your page elements and design your graphics so they will scale with the size of the page.

Remember, too, that users may want to access your site on a PDA or even a cell phone. Those devices have much smaller resolutions.

Pages should be tested to a screen size of 800x600 pixels, which is the default screen resolution for many graphics cards and many users do not change from this size.

You should keep in mind that there are still a number of users who do use 640x480 resolution, either because they have an older system or because they have visual problems and prefer a lower resolution.

Make sure that pages are readable at lower resolutions. MSN TV (formerly Web TV) only has a 560 pixel width and no horizontal scrolling and cell phones may only have a 120 pixel width.

Layout

Standard: Your web site should have a consistent look and feel across all your pages.

Guideline: A simple layout consisting of a header, footer, sidebar and body is preferred. This style of layout is familiar to most users and is relatively simple to do without using any tables (Illustration 1).

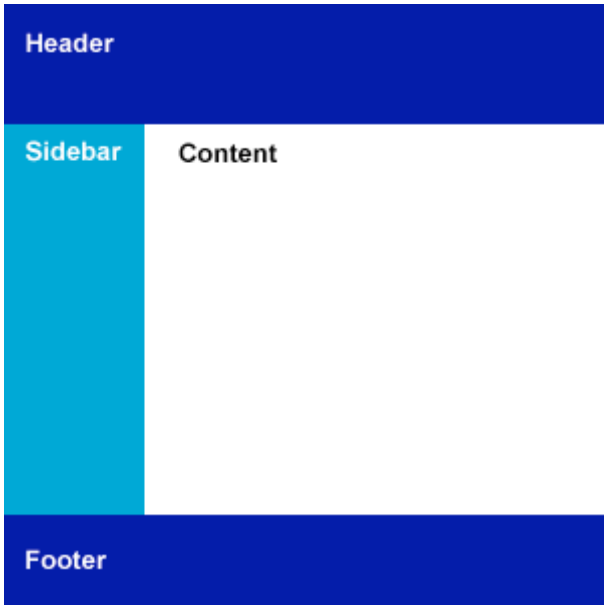

Illustration 1 - Sample Layout

An alternate layout may be to have both a left and right sidebar, or a right-side sidebar only.

Whenever possible, tables should not be used for layout. Your design will be much more flexible and easier to maintain if you use a table-less design.

The *header* should contain the agency logo (and other agency identification) and site-wide navigation tools (search, contact info, help). This header would appear on all pages in one version or another.

The *footer* is a good place to put your disclaimers and privacy statement. This may also be the best place to put an accessibility link for any users that may have problems reading the page, as required by the Missouri IT Accessibility Standards.

The footer should contain a way for the user to contact the web master to report problems with the site, as well as the date the page was last updated and copyright information.

The *sidebar* is where you would put some topical navigation links. The sidebar should appear on most top-level pages on your site.

The *content* section contains the information or data that you are presenting to the user. This section will change on each page, while the other sections will be part of a template.

Agency Common Elements

These common elements should be on most pages throughout your web site. They will help brand your web site and reinforce your agency's web identity. All of these items are guidelines for the purpose of this document, but your agency can make them into an agency standard for your site.

Navigation

Guideline: You should also organize your site by functions rather than by the hierarchical organization of your agency.

Organizing this way will help the users find the services and information they need without knowing the political structure of the agency.

Guideline: If your agency is part of a department or other larger organization, the relationship to that organization should be made very clear, with links back to the parent organization in your main navigation.

Guideline: Your site should have a consistent navigation scheme across all pages.

Navigation should include a Search form and a contact link. It may also include such items as employment links, FAQs or other pages that will help users navigate through the site.

Guideline: You should not use graphics (other than logos) for your navigation.

Most navigational links are text-based, and you can achieve most rollover effects using CSS rather than javascript and images. This will reduce your page size, and make your page more accessible and easier to maintain.

There is nothing wrong, however, with using background images or replacing bullets in a navigational list with images.

Layout

Guideline: Avoid using tables for laying out your site.

Instead, create your page as a plain text page, using hierarchical markup (<h1> for the main title of you page, <h2> for secondary topics, <p> for paragraphs, etc) and tags to mark the different areas of the page.

Illustration 2 - Basic HTML page with no styling

Look at the code: *<replace text with link to separate exhibit>*

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html;
charset=iso-8859-1" />
<title>Example 1</title>
<link href="/temp/DMD/css.css" rel="stylesheet"
type="text/css" />
</head>
<body>
<div id="header"> <img src="logo.gif" alt="Missouri Digital
Media Developers" height="80" width="185" />
  <div id="global-nav">
    <p> <a href="http://www.mo.gov">State Home Page</a> | <a
href="/index.htm">DMD
        Home Page</a> | <a href="/search.htm">Search</a> |
<a href="/sitemap.htm">Site
        Map</a> </p>
  </div>
  <!--close top_navigation div -->
</div>
<!--close header div -->
<div id="sub-nav">
```

```
    <ul>
      <li>Item 1</li>
      <li>Item 2</li>
      <li>Item 3</li>
      <li>Item 4</li>
    </ul>
  </div>
  <!-- close sidebar -->
  <div id="content">
    <h1>Missouri Web Standards and Guidelines</h1>
    <h2>Introduction</h2>
    <h3>Scope</h3>
    <!-- Note the escaped apostrophe (&#39;) in the next line
  -->
    <p>The guidelines are concerned with the web
  developer&#39;s final product...</p>
  </div>
  <!-- close content section -->
  <div id="footer">This is the footer of the page.</div>
  <!-- close footer section -->
  </body>
  </html>
```

Then, use CSS to mark up the page, giving styles and positioning to the header, footer, sidebar and content sections.

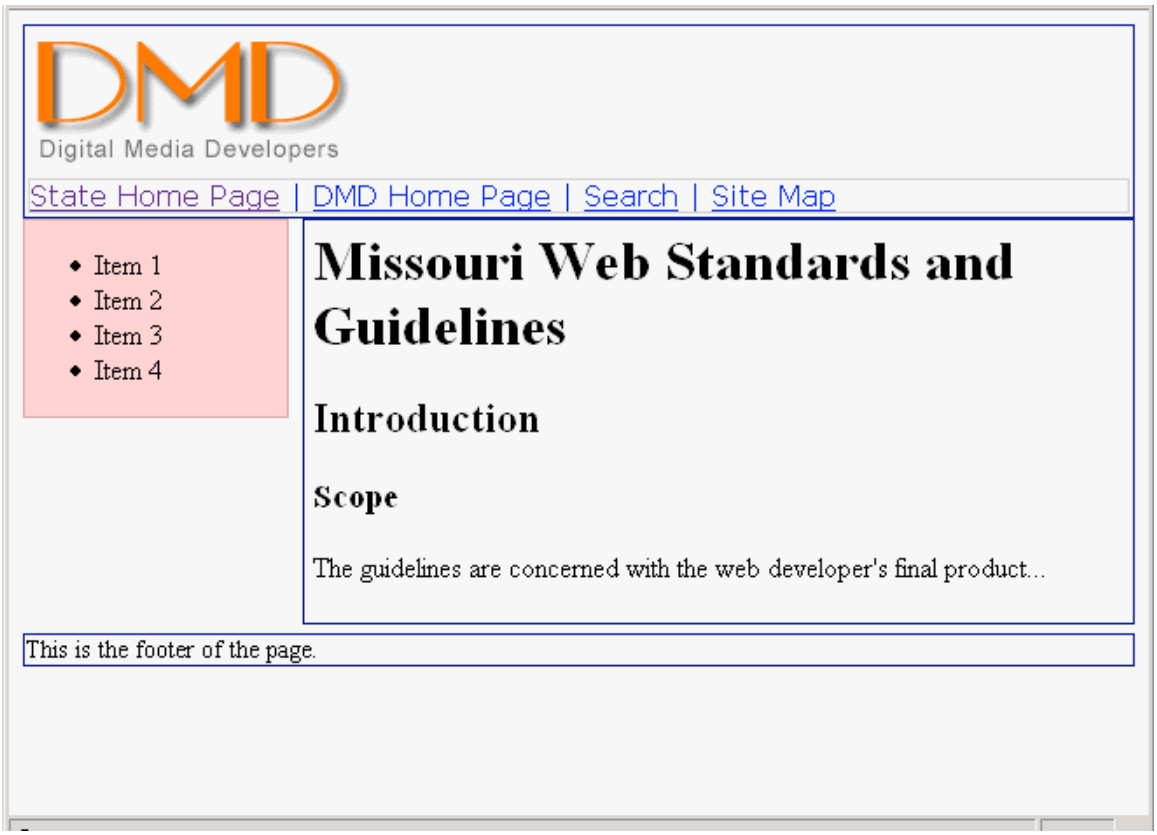

Illustration 3 - Basic page with styles added

Look at the style sheet: <*replace text with link to separate exhibit*>

```
#header {
        background-color: #fff;
        color: #ccc;
        border: 1px solid navy;
        padding: 2px;}
        #header  img {border: 0;
}
#global-nav {
        font-family: Verdana, Geneva, Arial, Helvetica, sans-serif;
        color: #00c;
        border: 1px solid #00f;
        border-color: #ccc;
}
#global-nav p { margin:0;}
#sub-nav {
        float: left;
        width: 150px;
        color: #000;
        background-color: #fcc;
        margin-right: 10px;
        border: 1px solid #c99;
}
#content {
        margin-left: 160px;
        margin-bottom:5px;
        color: #000;
        background-color: #fff;
        border: 1px solid navy;
        padding: 5px;
}
h1 {margin-top:0;}
#footer {
        font-size: .9em;
        border: 1px solid navy;
}
```

A note about frames

Frames are strongly discouraged on state Web sites. They have some serious accessibility issues, and make it difficult, if not impossible, to bookmark or link specific pages on your site.

Instead, consider using server-side includes to put persistent elements (like navigation sidebars, headers and footers) in your pages.

The following are tips to consider if you choose using frames:

1. Frames make it difficult for other sites to deep link to your site and maintain any navigation.
2. You will need to provide a "no frame" alternative to pages with frames.
3. Frames are not available on all browsers.
4. If overused, frames can create a page that is cluttered and difficult to use.

Page Elements

In addition to common elements, there are some basic design best practices for your site and for each page.

DTD

Every page needs to have a DTD declared in the first line of the page, as specified in the Layout/Design Elements section.

Head content

This is information that goes into your <head> tag on each page. It contains data that is used by the browser, search engines, and the user. This is an often-neglected section of the Web page. Here's what you need to include:

Title

The title of the page is an important but often overlooked tag. The title gets picked up by most search engines and displayed in the search results, so a good title will help the user select the right page.

The title of pages should be short and descriptive of its contents. It is used by search engines and by the user's bookmarks. The title should indicate your state and agency wherever possible.

Example:

Bad title: Standards and Guidelines.
Good title: State of Missouri Web Standards and Guidelines.

Meta tags

Meta tags contain information about the page. These can include author information, keywords or descriptions. Many search engines (including ht//dig, the state search engine) use meta information to rank results.

Three meta tags are particularly important:

1. The "http-equiv" meta tag tells the browser what character set to use to display

the page. It is vital to include this tag if you are using XHTML and you have omitted the <?xml> declaration at the beginning of the document.

The format for this meta tag is:

```
<meta http-equiv="Content-Type" content="text/html;
charset=iso-8859-1" />
```

2. The "keywords" and "description" meta tags help the state search engine, ht://dig, to index and rate your page. Other search engines may use these meta tags to rate search results, but most of them use the actual page content to rank your page.

   Keywords are just words that would help identify the contents of the document or the purpose of the page.

   Ht://dig looks for space-delimited keywords, like this:

   ```
   <meta name="keywords" content="Missouri web standards
   DMD" />
   ```

   Other search engines look for a comma-delimited list of words.

   "Description" can be a phrase or paragraph that explains what the page contains or what its purpose is. For example:

   ```
   <meta name="Description" content="Missouri Web Standards
   and Guidelines will help Missouri web developers write
   accessible pages using best practices." />
   ```

3. The "refresh" tag will either update a page or redirect the user to another web page after a certain interval. This tag should not be used, since it can cause some accessibility issues and may disable the user's "back" button. Instead, use a server redirect to forward the user to the correct page without the obsolete page ever being displayed.

   Example of a meta redirect:

   ```
   <meta name="refresh" content="300">
   <meta name="refresh" content="3,http://www.w3c.org">
   ```

   The first example refreshes the current page after five minutes. The second example sends the user to a new page after 3 seconds.

Other meta tags available are:

```
<meta http-equiv="Expires" content="Mon, 20 May 2004 01:00:00
GMT">
<meta name="author" content="John Doe">
<meta name="copyright" content="&copy; 2004 DMD">
```

More information about meta tags is available at http://www.w3.org/TR/WD-html40-970708/struct/global.html#h-7.1.3.2.

Linking Cascading Style Sheets

External CSS files are linked in the head of the page. There are two main methods of linking an external style sheet to a page: linking and "@import".

Linking is recognized by all browsers:

```
<link rel="stylesheet" href="/path_to_css/default.css"
type="text/css">
<link rel="alternate stylesheet"
href="/path_to_css/hicontrast.css" type="text/css"
title="High Contrast">
```

The "rel", "href" and "type" attributes are mandatory. "Rel" can be either "stylesheet" or "alternate stylesheet".

"Alternate stylesheet" allows additional style sheets to be available if the browser supports stylesheet switching. At present, Mozilla-based browsers, such as Netscape, Firefox and Safari, and Opera support alternate style sheets. Internet Explorer does not.

The other way to link to an external style sheet is with an "@import" statement, which looks like this:

```
<style type="text/css">
<!--@import url("/path_to_css/default.css");-->
</style>
```

Most current browsers recognize the "@import" statement, but Netscape 4.x does not. This means you can use the "@import" to exclude certain styles from Netscape 4.x but allow other, more modern browsers to display the styles.

Naming conventions
Guideline: Folder and page names should be "human-readable", using actual words or abbreviations instead of numbers or random sequences.

As your agency web site grows and gets more complicated, using some standards naming conventions will help keep your site organized and easier to maintain.

Naming conventions work on three levels:

1. Folders/Directories
2. Pages/Files
3. Internal names

Folder names should, if possible, describe the contents of the files with a simple word or abbreviation. This will help your maintainers and users navigate through the site. For example, the two main sections of the Missouri Department of Revenue site are for taxes and motor vehicles/drivers licenses. Their folder names are "tax" and "mvdl", respectively.

Page names are more complicated, and have more guidelines:

- Always make sure the file has an extension (".htm" or ".jpg", for example).
- The main page of every folder should be named "index.htm" or "default.htm", depending on your server setup. Many search spiders simply look in a

directory for available files. Many Web servers are configured to look for an "index.htm", "index.html", "index.shtml", or "index.cgi" file when simple directory calls are made. Users can reference just the domain and folder path to get the main page instead of trying to remember the specific page name.

- Use the ".htm" extension on all XHTML/HTML files. This extension is most common and is easier to remember than ".html", ".shtm" or any other variation. If you are using a server technology such as JSP, PHP or ASP, use the appropriate file extension (.jsp, .php or .asp, respectively).
- The state server is case-sensitive. Use lower case names whenever possible.
- Avoid using spaces or special characters in your file name. Some search engines, browsers and even servers do not recognize the space or other special characters as legitimate file name characters. If you need a separator between words, use an underscore "_".

Within your pages, if you use the following suggested id attributes for your tags, you will find it easy to identify the different parts of your web page. If other agencies use the same naming convention, you will be able to substitute other state style sheets for your own.

Id name	***Description***
header	The entire header of the page
global-nav	Primary navigation, usually right below the header
search	Search form
sub-nav	Secondary navigation, usually in a sidebar
content	The main content of the page
features	Special features, such as a calendar or special event
news	News headlines
tert-nav	Third-level navigation, if you need it
footer	The footer of the page

Illustration 4 shows an example of how to use the id names.

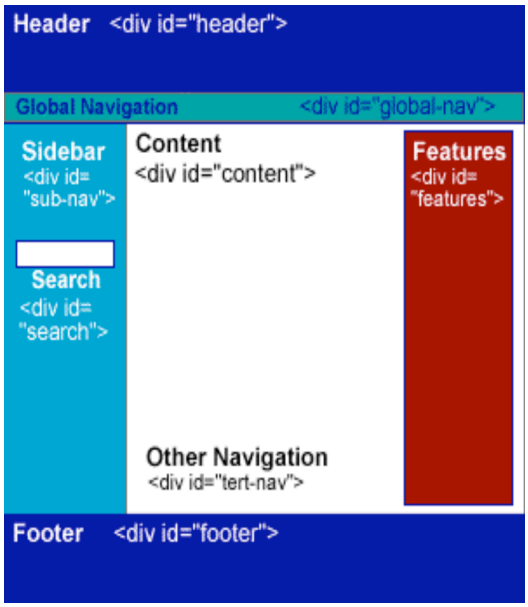

Illustration 4--div tags with ids

Color and Graphics

If you are starting to follow standards, you already have a well-formed text page with all your content, navigation and other features. But you still have a plain, black and white page.

Colors and graphics add life to your Web site. They add branding and consistency to your site. But they can trip you up and render your pages inaccessible and unusable.

Colors and Backgrounds

1. Create a color palette for all the colors you will use in your site.
2. Use a style sheet to set your colors and background colors. Do not use tag mark-up.
    - Bad: `<body bgcolor="blue">`
    - Good: `...<style>body {background-color: #00f; color: #fff;}</style></head> <body>`
3. Make sure your foreground and background colors offer enough contrast to be readable.
4. If you use an image in your background, make sure it is uncluttered and uses low contrast and saturation so the text stays readable.
5. While most computer graphic cards can render thousands or millions of colors, make sure your colors degrade gracefully if your user only has 256 colors.
6. If you declare a color in your style sheet, explicitly declare the background color as well. This will help you avoid embarrassing inheritance problems and will make your code easier to read.

Illustration 5--Color Palette

Graphics and Images

Graphics make your pages interesting, but in order to be accessible, you need to make

sure that the graphics aren't necessary; someone who either cannot see the graphics, or someone that has turned images off on his browser, should still be able to understand what the graphic means.

The easiest way to do this is by using an “alt” attribute to attach a short text description to each image. For example, if your logo is also a link to your home page, the alt attribute would be:

```
<img src=”image/pic1.gif” alt=”[your agency] Home Page” />
```

Use the following tips for images and graphics:

1. **Use ALT attribute to attach text to a graphic** for non-graphical browsers or browsers with graphics turned off.
2. Keep image file size small. Use a program such as Fireworks or ImageReady to compress your images.
3. Images should take no longer than a few seconds to download using a 56K modem.
4. Save image files with the extension “.gif” and “.jpg” to be used in Web pages. Use GIF for black and white and for flat color graphics. Use JPG for continuous-tone images (photographs) at either medium or low and for gradations (medium).
5. Save images in interlaced format (GIF 87a or 89a format) for faster display. Fireworks or ImageReady will do this automatically.
6. Set mode as indexed color format to restrict the colors in the image palette to 256 or less.
7. Set resolution to 72 dpi. This is the default for GIF files.
8. Set palette to adaptive/diffusion to reduce dithering or color distortion by the browser.
9. Keep in mind many people may view your graphics on a screen that is smaller than 640 x 480 pixels in size. MSN TV is 560 pixels wide and does not allow side scrolling, and PDAs and other devices have smaller widths.

Animated Graphics

Animated graphics draw your user's eye by motion. While this is a good thing for ads, it is not necessarily good for accessibility or usability. Blinking images can trigger epileptic seizures at worst and may distract from your page content at best.

The following are tips to consider when using animated GIFs or Flash.

- Animations that loop continuously can be annoying and can be distracting to the user.
- Make sure the animation stops after a certain number of loops or allow the user to turn the animation off.
- Keep the size of the image small.
- Add time between frames to control the speed of the animation.

PDF Files

Portable Document Format (PDF) files use a the Acrobat Reader to display documents in a browser. The PDF format basically captures the print instructions for a document and allows the document to be viewed just like it would be printed from its native application. Think of it as a "What You Print is What You Get."

Your most common use for PDF files should be forms that your agency requires users to submit for licenses, applications, filings and other ways of submitting or requesting information. For instance, you can make tax forms available so the users can print their own copy instead of going to the post office or library to pick up a copy.

PDF files should be the exception rather than the rule for posting information on your web site. Your first choice for publishing information should always be HTML.

Disadvantages of PDF files

There are several reasons why you should limit your use of PDF files on your web site.

1. PDF documents are often inaccessible. While Adobe has made great strides in making sure that PDF files are readable with screen readers, PDF documents are still less accessible than plain text or HTML.
2. PDF documents require a plug-in to display the files. While most mainstream browsers either include the plug-in or make downloading it easy, Acrobat still has to open a separate process to display the page.
3. PDF documents are large. While you can keep the file size fairly small by creating your PDF files efficiently, they are still larger than text or HTML files and require longer to download.
4. Unless your source document is well-formed, the PDF document you create from it will have no navigation within the document.
5. You will generally lose all your site navigation when the user opens a PDF document. The only way to navigate back to the web site is through the "Back" button.

Advantage of PDF files

There is one main advantage to PDF:

> Files that are *meant* to be printed work well in PDF, in particular forms, brochures, newsletters and other information that you intend for the user to print rather than view on line.

Do's and Don'ts

PDF should never be the first choice for web publication. It is easy for some content managers to think to themselves, "I need to get this Word document published quickly. I'll just convert it to PDF and post it." This is usually always the wrong thing to do. While it make take a few minutes to convert the document to HTML and clean it up so it validates, the results will always load faster and be more accessible than using PDF.

You should not scan paper documents to convert to PDF if you are publishing to the web. All you will be doing is taking a picture of the document, and the file will be large, inaccessible and will not scale properly if the user tries to enlarge the page.

If you do need to scan a document, use Acrobat's optical character recognition (OCR)

function to convert the characters to text, then clean up any errors in the OCR.

Always work from the source document. If you are publish a form that State Printing creates for you, ask them for a PDF copy of the document so you can work from their original digital file.

If you allow users to submit a form through the web, use an HTML-based form that uses CGI to capture the data. It will be much smaller than creating fillable fields in a PDF document and running it through your CGI.

If you require a user to print the form and submit it, consider making all the form fields fillable so the user can fill out the form on-line before printing. This will make sure all the fields are readable.

Creating PDF documents

You can create PDF documents from any application that uses a printer. If the program doesn't have a toolbar to create a PDF document, you can drag and drop the file onto the Acrobat Distiller to create the new document.

If you are creating a PDF document from a word processor, such as MS Word, make sure your original document is well-formed. Use headings, paragraphs and other structural tools to create different section of the document. When you convert the file to PDF, Acrobat will pick up the heading and create a navigate tree for easy navigation.